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NOTES ON GEOGRAPHIC DISTRIBUTION

New state record and distribution extension of the golden tegu *Tupinambis teguixin* (Linnaeus, 1758) (Squamata: Teiidae) to the Caatinga biome, northeastern Brazil

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ABSTRACT: We expand the distribution of *Tupinambis teguixin* to the Caatinga biome, and report the first record of this species in Ceará state, northeastern Brazil. We found *T. teguixin* at a typical Caatinga habitat, approximately 215 km from the nearest locality with known record of the species. Our findings expand the knowledge of Caatinga's herpetofauna, reinforcing the deficiency of information from several areas, and the necessity of additional surveys in this biome.

The subfamily Tupinambinae Estes, de Queiroz, and Gauthier, 1988 comprises four genera (*Crocodilurus*, *Dracaena*, *Salvator*, and *Tupinambis*) of large Neotropical teiid lizards (Harvey *et al.* 2012). The genera *Salvator* Duméril and Bibron 1839 and *Tupinambis* Daudin 1802 include the largest terrestrial lizards of the New World, with distributions restricted to South America, east of the Andes, occurring from northern Colombia to southern Argentina (Ávila-Pires 1995; Fitzgerald *et al.* 1999). Despite the morphological similarity, the genus *Salvator* was recently resurrected from the synonymy of *Tupinambis*, and currently consists of three species (*sensu* Harvey *et al.* 2012): *S. duseni* Lönnberg, 1896, *S. merianae* (Duméril and Bibron, 1839) and *S. rufescens* (Günther, 1871), mainly distributed in open ecosystems, while the genus *Tupinambis* contains four species: *T. longilineus* Ávila-Pires, 1995, *T. palustris* Manzani and Abe, 2002, *T. quadrilineatus* Manzani and Abe, 1997, and *T. teguixin* (Linnaeus, 1758), with primary occurrence in forest ecosystems. Although a recent molecular-based hypothesis has suggested the retaining of traditional taxonomy of Teiidae (Pyron *et al.* 2013), we follow the classification proposed by Harvey *et al.* (2012), due to it being based on morphological characters, which are the primary guide to identify specimens on fieldworks and scientific collections. However, we agree with Pyron *et al.* (2013) that the phylogenetic relationships of Teiidae remain insufficiently understood, and additional taxonomic changes are expected for the future.

Tupinambis teguixin is the largest member of the genus, with individuals reaching up to 400 mm snout-vent length (SVL) (Harvey *et al.* 2012). This species occurs in northern and central South America, from Colombia to southeastern Brazil (Ávila-Pires 1995; Péres-Junior 2003). This ground dwelling, heliothermic, widely-foraging lizard inhabits both forested and open phytophysiognomies, and has been commonly associated with riparian vegetation (Ávila-Pires 1995). In Brazil, it is known from the Amazon Forest and Cerrado biomes, in the states of Acre, Amapá, Amazonas, Goiás, Maranhão, Mato Grosso, Mato Grosso do Sul, Minas Gerais, Pará, Piauí, Rondônia, Roraima, São Paulo, and Tocantins (Ávila-Pires 1995; Péres-Junior 2003; Benício and Fonseca *in press*). Although the species has been reported from southern Brazil (Silva *et al.* 2008), this probably constitutes a misidentification of *Salvator merianae* (Ávila and Silva 2010). Herein, we report a new locality of occurrence, present a new state record and extend the distribution of *T. teguixin*, expanding the knowledge of its geographic distribution.

On 10 April 2013 we collected by nylon noose two individuals of *Tupinambis teguixin* (Figure 1) in Sanharão locality, Groaíras municipality, northwestern Ceará state, northeastern Brazil (03°54'15" S, 40°24'22" W; Datum – WGS 1984). The specimens were a female and a juvenile of unknown sex with SVL 266 and 222 mm respectively. Specimens were collected under permit #10893-1, reg. 472138, issued to DMBN. The collected specimens (are housed in the Coleção Herpetológica da Universidade Federal do Ceará, under voucher numbers CHUFC L 4847 and CHUFC L 4848. The location was characterized by sandy soil and riparian vegetation, along the margins of the Acaraú River (Figure 2), three km from the centre of the city of Groaíras. This area is a savannah-like phytophysiognomy and environmental conditions are typical of the Caatinga biome, with deciduous and thorny shrubs in a semi-arid climate.

Meristic, morphometric and color characters of both collected individuals fit the known morphology for *T. teguixin* (Table 1). *Tupinambis teguixin* differs from *Salvator* by having: one loreal scale (two in *Salvator*);

supraocular scales in direct contact with supraciliar scales (indirect in *Salvator*); and supratemporal scales much larger than temporal scales (moderately larger in *Salvator*). Additionally, *T. teguixin* can be distinguished from its congeners *T. longilineus*, *T. palustris*, and *T. quadrilineatus* by its color pattern (Figure 3): absence of longitudinal black band on flanks (present in *T. longilineus*); presence of transverse dark bands on back (absent in *T. palustris*); and absence of complete dorsolateral light stripes (present in *T. quadrilineatus*) (Ávila-Pires 1995; Péres-Junior 2003; Harvey *et al.* 2012).

At Sanharão, we sighted at least five other individuals of *T. teguixin*, males, females and juveniles. We were able to identify the sex of adults because adult males have swollen gular regions and wider necks than females (Ávila-Pires 1995).We also sighted several individuals of *T. teguixin* in two other areas in Groaíras municipality: one was a sandy area situated on the left bank of the Acaraú River (Marrecas

Figure 1. *Tupinambis teguixin* (Squamata:Teiidae) from Groaíras municipality, Ceará state, northeastern Brazil.

Figure 2. Caatinga riparian vegetation, along the margins of Acaraú River, at the site of collection.

Table 1. Meristic, morphometric and color characterization of collected specimens of *Tupinambis teguixin* (Squamata:Teiidae) from Groaíras municipality, Ceará state, northeastern Brazil. Characters definition follows the specific bibliography (Ávila-Pires 1995; Péres-Junior 2003; Harvey *et al.* 2012).

CHARACTERS	CHUFC L 4847	CHUFC L 4848
Meristic		
Axial		
Loreal scales	1	1
Contact between supraocular and supraciliary scales	Direct	Direct
Row of scales between mental and infralabial scales	Absent	Absent
Supratemporal in relation to other temporal scales	Much Larger	Much Larger
Supralabial scales (bilateral)	15	15
Infralabial scales (bilateral)	15	16
Nape scales in relation to dorsal scales	Same Size	Same Size
Temporal scales in relation to dorsal scales	Same Size	Same Size
Supraciliar scales (bilateral)	16	17
Scales around midbody	116	115
Dorsal scales	121	119
Transversal rows of ventrals scales	36	37
Ventrals scales across midbody	25	24
Angle of dorsal scales	Smooth	Smooth
Precloacal pores (bilateral)	6	8
Scales around tail	93	85
Apendicular		
Femoral pores (bilateral)	12	12
Lamellae under fourth finger	16	17
Lamellae under fourth toe	34	33
Morphometric		
Snout-vent length (mm)	222	266
Tail length (mm)	356	375
Body width (mm)	60	77
Body height (mm)	39	54
Head length (mm)	46	55
Head width (mm)	29	36
Head height (mm)	24	30
Coloration		
Transverse bands on back	Present	Present
Black band on flanks	Absent	Absent
Longitudinal stripes on flanks	Absent	Absent

locality), (03°53'21" S, 40°24'08" W; Datum – WGS 1984), two km N of Sanharão; the second was a partially flooded area in the vicinity of downtown Groaíras municipality (03°55'07" S, 40°22'59" W; Datum – WGS 1984), three km SE of Saranhão. At all locations, we were able to identify juveniles and adults of both sexes, suggesting reproductive viability of these populations.

The present report is the first record of *Tupinambis teguixin* for the Ceará state, extending its known distribution approximately 215 km E from the nearest previously recorded locality (Barras municipality, Piauí state; Benício and Fonseca *in press*). Furthermore, this is the first report of *T. teguixin* from the semi-arid Caatinga biome; until now it was known in Brazil only from the Amazon Forest and Cerrado biomes (Figure 4). Our findings expand the knowledge of the Caatinga herpetofauna, reinforcing the deficiency of information from several areas and the need of additional surveys in unexplored regions in this biome.

Figure 3. Ventral and dorsal view of adult female specimen of *Tupinambis teguixin* (SVL = 266 mm; CHUFC L 4848), illustrating the typical color pattern of the population occurring in the study area.

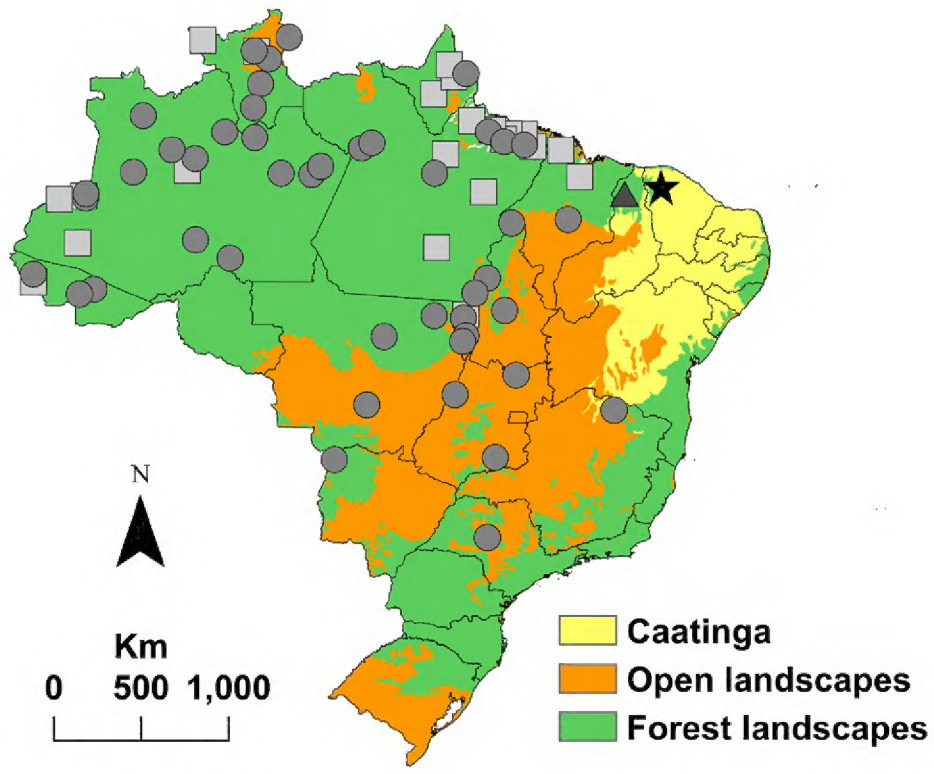

Figure 4. Distribution map of *Tupinambis teguixin* in Brazil. Squares, circles and triangle are respectively the localities of occurrence reported by Avila-Pires (1995), Péres-Junior (2003), and Benício and Fonseca (*in press*). Star represents the new locality record reported in the present study.

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